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PATENT APPLICATION

RESPONSE UNDER 37 CFR §1.116
EXPEDITED PROCEDURE
TECHNOLOGY CENTER ART UNIT 2654

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Salah AIT-MOKHTAR et al.

Group Art Unit: 2654

Application No.: 09/738,319

Examiner: V. Harper

Filed: December 18, 2000

Docket No.: 108169

For: METHOD AND APPARATUS FOR GENERATING NORMALIZED REPRESENTATIONS OF STRINGS

REQUEST FOR RECONSIDERATION

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In reply to the July 15, 2003 Office Action, reconsideration of the application in light of the following remarks is respectfully requested.

Claims 1-8 and 10-20 are pending.

The Office Action rejects claims 1-8, 10-18 and 20 under 35 USC §102(e) over U. S. Patent No. 6,202,064 to Liddy. This rejection is respectfully traversed.

A prior art reference anticipates the subject matter of a claim when that reference discloses every feature of the claimed invention, either explicitly or inherently. In re Schreiber, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997) and Hazani v. Int'l Trade Comm'n, 126 F.3d 1473. 1477. 44 USPQ2d 1358, 1361 (Fed Cir. 1997). While, of course, it is possible that it is inherent in the operation of the prior art device that a particular element operates as theorized by the Examiner, inherence may not be established by

probabilities or possibilities. In re Oelrich, 666 F.2d 578, 581, 212 USPQ 323, 326 (CCPA 1981) and In re Rijckaert, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993).

Liddy generates a language-independent conceptual representation of the subject content of a document and can subject the document to additional analysis to provide term-based representations, such as extraction of information-rich terms and phrases, such as proper nouns. See the Summary of the Invention in col. 2 of Liddy.

Initially, Applicants do not understand why this rejection is repeated verbatim from its form in the May 15, 2003 Office Action, despite the fact that in the "Response to Arguments" portion of the Office Action, a completely different part of Liddy (col. 15, line 63 through col. 16, line 10) is relied upon to allegedly disclose the feature of "skeletising each of the first representations to generate a corresponding second representation for each of the input strings; said skeletising step replacing the linguistic information with abstract variables in each of the second representations" than is relied upon in the rejection as stated. The stated rejection relies on col. 6, lines 15-20, Figs. 1 and 2, col. 6, line 63 through col. 7, line 5 of Liddy to allegedly disclose this feature.

If col. 15, line 63 through col. 16, line 10 is the portion of Liddy that is actually being relied on to anticipate the quoted "skeletising" feature, then making the current Action a final Office Action is improper. Applicants are entitled to procedural and substantive due process, which includes having the right to receive a non-final Office Action where the basis of the rejection is changed from the previous ground of rejection and where the change is not required by claim amendments. Here, the claims were not amended with respect to the "skeletising" feature.

Applicants respectfully request clarification of the actual basis of the rejection insofar as the "skeletising" feature of claims 1-8, 10-18 and 20 is concerned.

To the extent that the Office Action asserts that this feature is anticipated by the disclosure of col. 6, lines 15-20, Figs. 1 and 2, col. 6, line 63 - col. 7, line 5 as "generating

both conceptual and term-based alternative representations of the documents and queries with relevant information extracted from the documents and indexed," Applicants respectfully disagree.

While Liddy linguistically analyzes input strings to generate first representations (of those strings) which include linguistic information, Liddy does not perform skeletising of each of the first representations to generate a corresponding second representation for each of the input strings, the skeletising step replacing the linguistic information with abstract variables in each of the second representations, as recited in claim 1.

In Liddy, the "analogous processing" mentioned in col. 6, lines 15-20 is said to be "to determine the requirements for document matching." The alternative representations of the documents and queries are said to be both conceptual and term based. See lines 19 and 20 of col. 6 of Liddy. However, Liddy never performs further processing that obtains second representations obtained by replacing the linguistic information obtained by the initial processing with abstract variables. Nor does Liddy provide a system to do so.

Fig. 2 of Liddy shows a preferred method of operation. For example, part of speech tagger 130 is disclosed as outputting a parts of speech tagged document and a proper noun identifier and categorizer 140 that identifies and tags proper nouns. Modules 150-190 generate monolingual vector codes of the subject contents of both documents and queries. Module 150 tags each word with the codes of all multilingual concept groups to which various senses of the word/phrase in the document belong. Module 160 outputs a fully tagged text stream with a single multilingual concept group for each word in the input text. Module 170 outputs a tagged, native language text stream with unique, monolingual (English), hierarchical categories assigned to each substantive word. Module 180 outputs a text stream with disambiguated monolingual categories assigned to each substantive word. Module 190 produces a fixed-dimension vector representation of the concept-level context of the text.

None of this processing in Liddy replaces earlier performed linguistic analysis. Liddy just performs additional processing of a query or of a document, but does not replace the earlier processing results. Not only does Liddy fail to disclose replacing linguistic information with other information, but Liddy also fails to disclose replacing linguistic information with abstract variables.

With respect to the additional reasons presented in the "Response to Arguments" section of the Office Action, i.e., with respect to Fig. 5 and col. 15, line 63 to col. 16, line 10 of Liddy, Applicants respectfully submit that the invention recited in claim 1 is not disclosed in those portions of Liddy.

Liddy does not replace linguistic information with an "abstract variable" as recited in claim 1. The Microsoft Press Computer Dictionary, 1991 edition, defines "abstract data type" as "a data type that is defined in terms of the information it can contain and the operations that can be performed with it. An abstract data type is more generalized than one constrained by the properties of the object it contains . . ."

Applicants respectfully submit that what is disclosed in the paragraph bridging cols. 15 and 16 of Liddy is constrained by the properties of the object it contains, i.e., the codes to which individual words are mapped clearly represent certain properties (e.g., meanings) of those individual words, and the codes are not abstract data of any type, let alone "abstract variables", as recited in claim 1. There is no indication in Liddy that the codes are defined in terms of the information they can contain and in terms of the operations they can perform. In other words, the disambiguated concept codes of Liddy are not "abstract variables", as recited in the claims.

Moreover, the "Response to Arguments" does not address what "abstract variables" are. Instead, it simply states that a word is disambiguated and then represented, i.e., replaced with disambiguated concept codes. Thus, the Office Action does not present any evidence to

demonstrate that "disambiguated concept codes" correspond to "abstract variables", as recited in the claims.

Therefore, Liddy does not anticipate claim 1 and the Office Action fails to make out a prima facie case of anticipation of claim 1 by Liddy.

Accordingly, the rejection of claims 1-8, 10-18 and 20 under 35 USC §102(e) over Liddy is improper and should be withdrawn.

The Office Action rejects claim 19 under 35 USC §103(a) over Liddy in view of Collins. This rejection is respectfully traversed.

Initially, Applicants do not understand why this rejection is repeated verbatim from its form in the May 15, 2003 Office Action, despite the fact that in the "Response to Arguments" portion of the Office Action, a different rationale is alleged to provide motivation to modify Liddy to come up with the invention recited in claim 19. The "Response to Arguments" section of the Office Action switches from one statement of what Collins discloses to a different statement of what Collins discloses as a basis for the alleged motivation to combine these references in the manner suggested.

The rejection itself states "Collins teaches the machine learning technique of discriminative re-ranking for natural language parsing where re-ranking techniques can be applied to problems in natural language processing to improve the resulting representations (§1, "Introduction")." - emphasis added. However the "Response to Arguments" section states something different, by stating that "Collins teaches the machine learning technique of discriminative re-ranking for natural language parsing and gives a motivation in terms of an improved representation that results [in] improved recall and precision, and decreased error (§1, last paragraph)." - emphasis added.

If (§1, last paragraph) is actually the portion of Collins that is being relied on to provide proper motivation to allegedly render claim 19 obvious, then making the current Action a final Office Action is improper. Applicants are entitled to procedural and

substantive due process, which includes having the right to receive a non-final Office Action where the basis of the rejection changes from the previous ground of rejection and where, as here, the rejected claim was not amended.

Applicants respectfully request clarification of the actual basis of the rejection insofar as the portion of Collins that is relied upon to provide motivation to combine the two applied references as suggested.

Turning to the merits of the rejection, Liddy does not anticipate claim 1 for the reasons stated above. Collins does not, and was not applied to, provide the features missing from Liddy as noted above. Accordingly, the rejection is improper because, even if properly combined, the asserted combination of references does not disclose, teach or suggest every feature recited in claim 1.

Furthermore, Collins is cited to render obvious "performing machine learning for selecting particular operating functions out of said plurality of operating functions and for determining the processing order." Collins is alleged to teach the machine language technique of discriminative re-ranking for natural language parsing and gives motivation in terms of an improved representation that results [in] improved recall and precision and decreased error. The newly presented alleged motivation to combine these references is for the purpose of "an improved representation that results [in] improved recall and precision and decreased error."

Applicants respectfully submit that the Office Action fails to make out a prima facie case of obviousness for the reasons stated above concerning the shortcomings of Liddy, and because the Office Action fails to provide proper motivation to combine these references as alleged.

A showing of a suggestion, teaching, or motivation to combine the prior art references is an "essential evidentiary component of an obviousness holding." C.R. Bard, Inc. v. M3 Sys. Inc., 157 F.3d 1340, 1352, 48 USPQ2d 1225, 1232 (Fed. Cir. 1998). This evidence may

flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved. See Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc., 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630 (Fed. Cir. 1996). However, the suggestion more often comes from the teachings of the pertinent references. See In re Rouffet, 149 F.3d 1350, 1359, 47 USPQ2d 1453, 1459(Fed. Cir. 1998). This showing must be clear and particular, and broad conclusory statements about the teaching of multiple references, standing alone, are not "evidence." See In re Dembiczak, 175 F.3d 994 at 1000, 50 USPQ2d 1614 at 1617. However, the suggestion to combine need not be express and "may come from the prior art, as filtered through the knowledge of one skilled in the art." Motorola, Inc. v. Interdigital Tech. Corp., 121 F.3d 1461, 1472, 43 USPQ2d 1481, 1489 (Fed. Cir. 1997).

The assertion that one of ordinary skill in the art would have been properly motivated to combine these two references (i.e., filed it desirable) for the purpose of achieving "an improved recall and precision" is not a clear and particular evidentiary teaching, but is only a broad conclusory statement. All information search and retrieval systems are evaluated in terms of precision, which is the percentage of relevant documents retrieved to the total number of documents retrieved, and recall, which is the percentage of the relevant documents retrieved to the total number of relevant documents in the database searched.

Moreover, Collins is concerned with natural language parsing which attempts to determine the sequence structure of sentences, whereas Liddy is concerned with categorizing individual words, and does not parse sentences. The Office Action never explains how one is allegedly motivated to modify Liddy's word-by-word translation system with Collins' sentence parsing system, or what in Liddy is re-ranked and how it is re-ranked, or what results from such an allegedly desirable re-ranking. Applicants respectfully submit that the details of how Liddy is allegedly modified by Collins are left up to speculation or further invention.

Finally, even if these two references were somehow properly combined, they would not render obvious the method of claim 1 because they are directed to different functions (e.g., word-by-word translation versus sentence parsing) and have different objects (e.g., document retrieval versus natural language parsing).

Accordingly, Applicants respectfully submit that claim 1 is neither anticipated by Liddy nor rendered obvious by Liddy in combination with Collins, and that the outstanding rejections should be withdrawn.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-8 and 10-20 are earnestly solicited.

Should the Examiner believe that anything further is needed to place the application in better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number listed below.

Respectfully submitted,

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JAO:RJW/sxb

Date: August 20, 2003

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